

Work Order ID 156762

Wednesday, February 08, 2017 9:09:17 AM

156762

Page 1

Item ID: 646.9710 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Body
Start Date: 2/2/2017 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 3/1/2017 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: DAS 21 Date: **FEB 08 2017** Tooling: _____ Date: _____ Run Start ***NR1***
QC: 9-89 Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
646.9700	D2

100
1000 BAND SAW 0.00
Bandsaw Memo 0.14
Jeaspa Bandsaw Cut Blank at 7.425"

10 0 P17-02-15

110
110 HAAS CNC VERTICAL MACHINING #1 0.09
HAAS 1 Memo 1.00
HAAS CNC vertical machine #1 1-Machine per folio FB130
DWG REV: D
FOLIO REV: 9A

Da 17-02-17 10 0 DAS 08 9-89

2- deburr and break all sharp edges

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong		
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions		
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance		
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect		
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing		
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved		
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing		
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish		
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread		
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence		
Past Expiry Date ☐	☐ Manufacturing Process	OTHER : _____					
Misidentified ☐	☐ Past Due						

Work Order ID 156762

Wednesday, February 08, 2017 9:09:17 AM

156762

Page 3

Item ID: 646.9710

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Body

Start Date: 2/2/2017

Start Qty: 10.00

10

Cust Item ID:

Required Date: 3/1/2017

Req'd Qty: 10.00

10

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

Receive & Inspect for Damage & Mat'l Certs

0.00

150

Packaging

Memo

0.03

Packaging

10X SP17-03-27.

155

QC5- Inspect part completeness to step on W/O

0.00

155

QC

Memo

0.03

Quality Control

2.0 mils thickness primer

10

DAS

38

9-89

MAR 28 2017

180

Identify as per dwg & Stock Location: CC1012

0.00

180

Packaging

Memo

0.02

Packaging

IDENTIFY AS PER APICAL MPP-120 BY STAMPING P# AND REV

10

DAS

6

9-89

MAR 29 2017

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By _____					
				Lead hand / Supervisor Approval Verification _____					
				QC / QA Coordinator Approval _____					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 156762

Wednesday, February 08, 2017 9:09:17 AM

156762

Page 4

Item ID: 646.9710 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Body
Start Date: 2/2/2017 Start Qty: 10.00 ***10*** Cust Item ID:
Required Date: 3/1/2017 Req'd Qty: 10.00 ***10*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
190									
QC	Memo	0.17							
Quality Control									

17/3/30 

 MAR 29 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
Root Cause				FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Wednesday, February 08, 2017 9:09:16 AM

Page 1

Work Order ID: 156762

156762

Parent Item: 646.9710

646 9710

Parent Item Name: Body

Start Date: 2/2/2017

Required Date: 3/1/2017

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP REV:A NEW ISSUE 12/10/04 JFS VERIFY BY: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M7075T6B5.000X1.000		Purchased	No			100	f	13.7880	0.62	6.526316			

M7075T6B5 000X1 000

7075-T6 BAR 5.000" X 1.000"

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
MAT005	13.788	
M135318	1.788	
M136344	12	

6.166

17-02-15

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐		
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐		
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐		
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐		
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐		
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐		
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐		
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐		
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐		
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐		
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____					
Misidentified ☐	Past Due ☐						

DART AEROSPACE LTD		Work Order:	156762
Description: Body		Part Number:	646.9710
Inspection Dwg: 646.9700 Rev: D2		Page 1 of 2	

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.13 x 45°	+/-0.010 x 0.5°	0.130x45°	✓		Vern	GA-13
1.500	+/-0.005	1.500	✓		"	"
0.352	+0.005/-0.000	0.3525	✓		"	"
0.10 x 45°	+/-0.010 x 0.5°	0.102x45°	✓		"	"
0.875	+/-0.005	0.873	✓		Mic	GA-03
0.700	+/-0.005	0.703	✓		Vern	GA-13
5.500	+/-0.005	5.500	✓		"	"
0.660	+/-0.005	0.658	✓		H-G	31006
0.660	+/-0.005	0.657	✓		Vern	GA-13
0.278	+/-0.002	0.278	✓		H-G	31006
0.339	+/-0.002	0.339	✓		"	"
0.352	+/-0.002	0.352	✓		"	"
0.372	+/-0.002	0.372	✓		"	"
1.067	+/-0.002	1.067	✓		"	"
2.608	+/-0.002	2.608	✓		"	"
2.750	+/-0.002	2.750	✓		"	"
2.892	+/-0.002	2.892	✓		"	"
3.348	+/-0.002	3.348	✓		"	"
3.597	+/-0.002	3.597	✓		"	"
3.847	+/-0.002	3.847	✓		"	"
0.351	+/-0.002	0.351	✓		"	"
0.544	+/-0.002	0.544	✓		"	"
2.195	+/-0.002	2.195	✓		"	"
2.304	+/-0.002	2.304	✓		"	"
2.451	+/-0.002	2.451	✓		"	"
2.639	+/-0.002	2.639	✓		"	"
3.395	+/-0.002	3.395	✓		"	"
3.495	+/-0.002	3.495	✓		"	"
4.551	+/-0.002	4.551	✓		"	"
4.595	+/-0.002	4.595	✓		"	"
4.687	+/-0.002	4.687	✓		"	"
4.734	+/-0.002	4.734	✓		"	"
6.651	+/-0.002	6.651	✓		"	"
Ø0.201	+0.005/-0.001	Ø0.201	✓		Vern	GA-19



APICAL INDUSTRIES, INC.
dba DART AEROSPACE

ENGINEERING CHANGE NOTICE NO.

05360

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. BECKER

DATE: 03/24/16

EFFECT ON DWG

☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY: ENGR *[Signature]*

MFG *[Signature]*

QC *[Signature]*

EFF. CURRENT ORDER

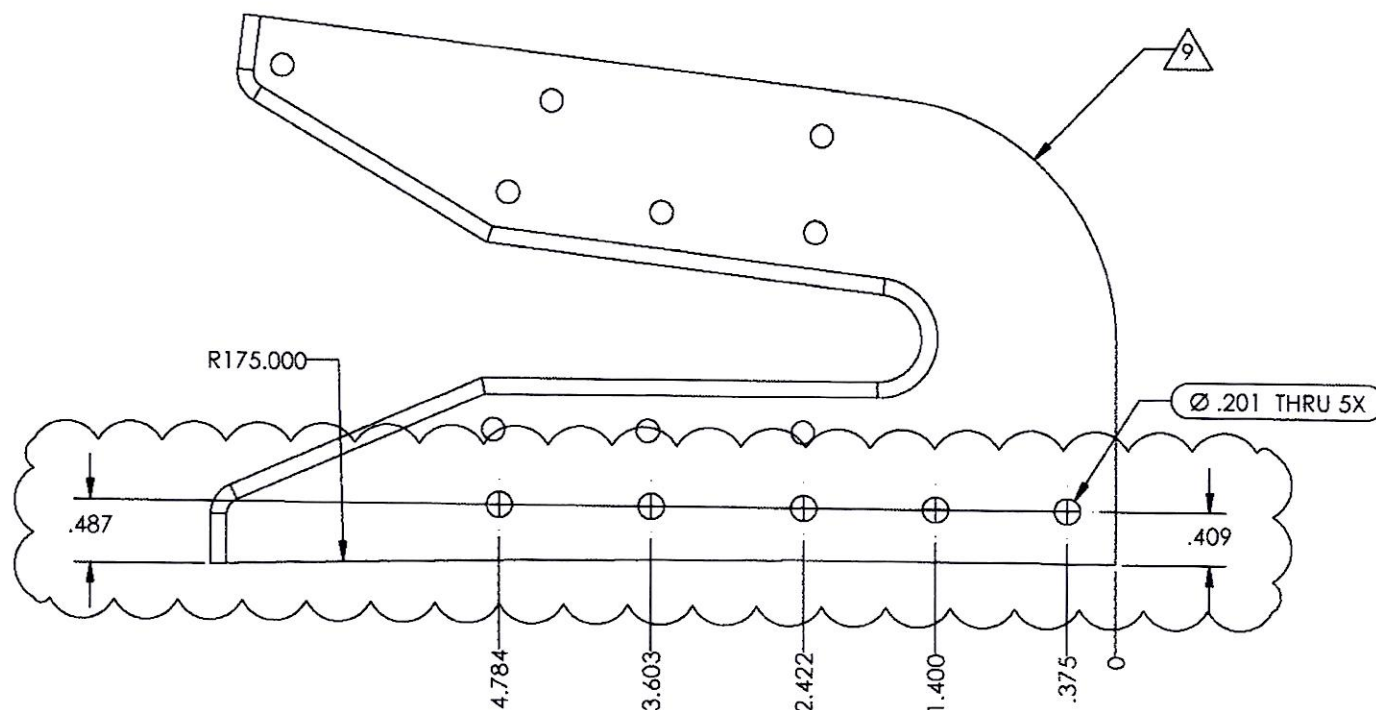
TRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

REASON: REVISED DIMENSIONS

ECR: N/A

ACTION ITEM:
1.

SHEET 7, ZONE C3 IS:



DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

DART
AEROSPACEAPICAL INDUSTRIES, INC.
dba DART AEROSPACETRANSACTION CODES (TC):
A-ADD C-CREATE
R-REVISE D-DELETE

ENGINEERING CHANGE NOTICE NO.

05345

SHEET 1 OF 1

DWG NO. 646.9700

REV: D

PREPARED BY J. GARDINER

DATE: 03/15/16

EFFECT ON DWG
☐ INC. ☒ UNINC.

DWG TITLE: CUTTER SUB ASSY

APPROVED BY:

ENGR.

MFG

QC

EFF.

CURRENT ORDER

REASON: REVISED NOTES

ECR:

N/A

ACTION ITEM:

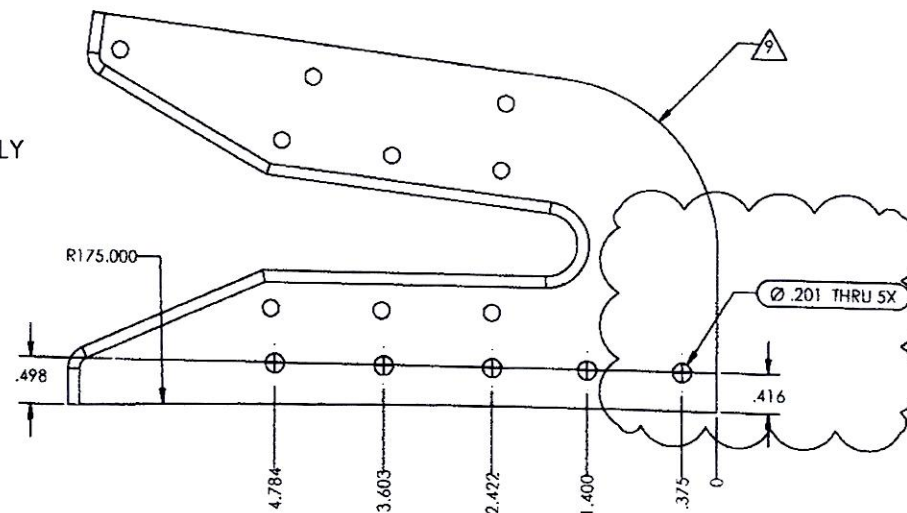
1.

SHEET 1, ZONE A6 IS:

NOTES:

IS

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 2.1, 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.

SHEET 7, ZONE C5 IS:

DOCUMENTS EFFECTED:

☐ PATTERN ☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

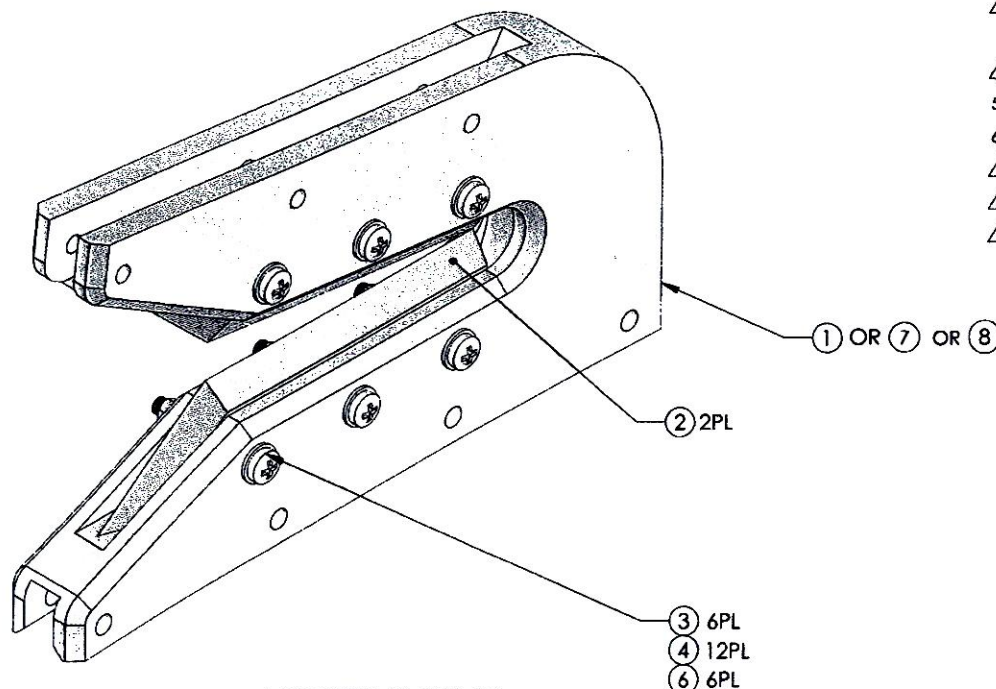
☐ YES ☒ NO

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION - PRG		INC
NC	INITIAL RELEASE	03/29/09	P. BRAVO
A	INCORPORATED ECH 02744 03030 03012	06/04/13	P. BRAVO
B	INCORPORATED ECH 03867	07/03/13	P. BRAVO
C	INCORPORATED ECH 04039	08/09/13	P. BRAVO
D	INCORPORATED ECH 04329	02/26/14	P. BRAVO

NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH IAW MPP-172 SECTION 3.3 & 4.3.
- 3 MATERIAL: AISI A2 TOOL STEEL
CONDITION: ANNEALED
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MPP-172 SECTION 3.3: 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



646.9701 SHOWN
646.9702 & 646.9703 TYP

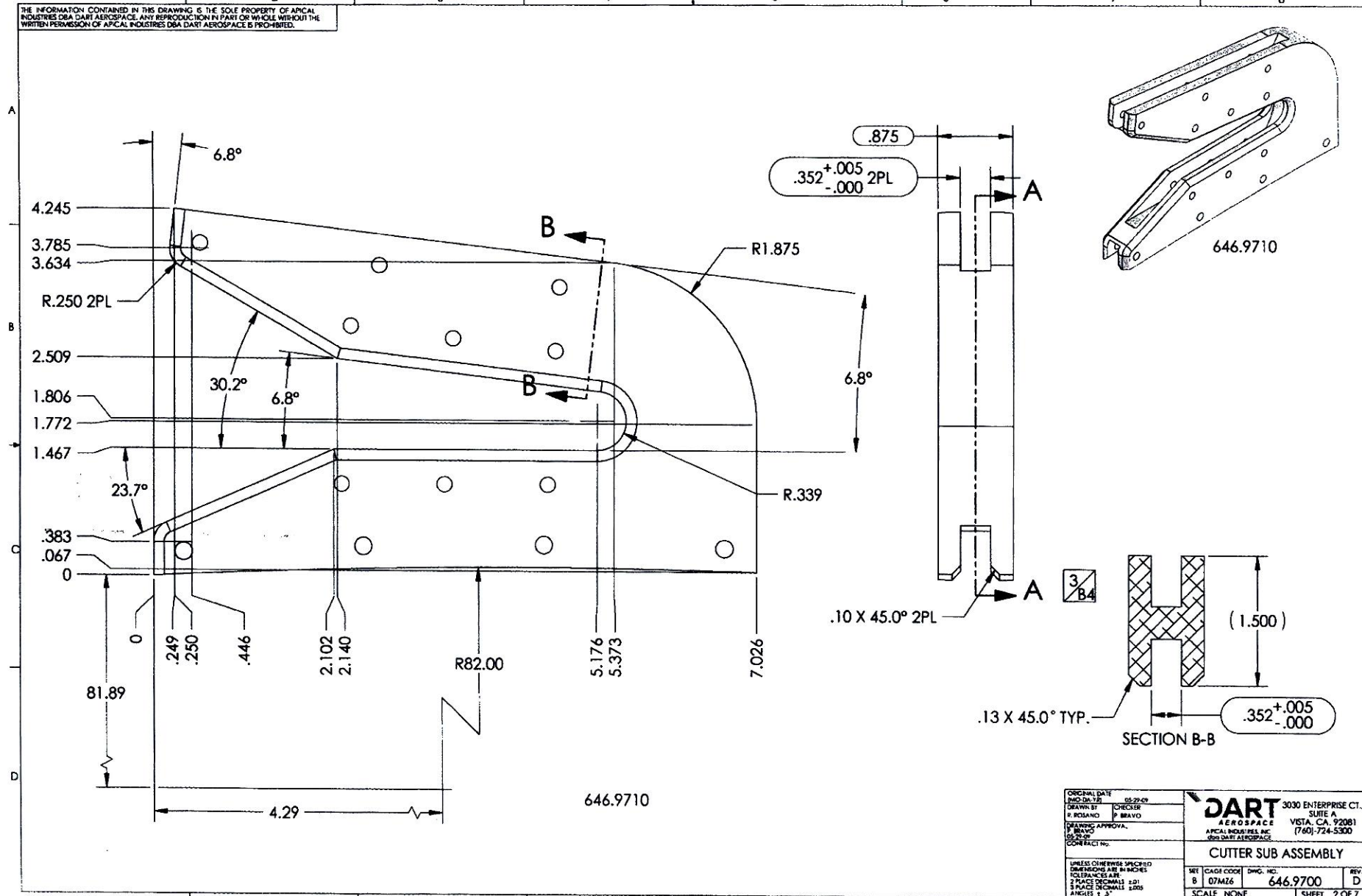
UNINCORPORATED ECN(S)

05345, 05360,

1			8	646.9713	BODY			
	1		7	646.9712	BODY			
6	6	6	6	601.1541	LOCKNUT	MS21042-08		
A/R	A/R	A/R	5	601.2045	RTV. LOCTITE 598			
12	12	12	4	601.2764	WASHER	NAS1147FMS3P		
6	6	6	3	601.2765	SCREW	MS27039-0819		
2	2	2	2	646.9711	BLADE			
			1	646.9710	BODY			
X				646.9703	CUTTER SUB ASSY			
	X			646.9702	CUTTER SUB ASSY			
		X		646.9701	CUTTER SUB ASSY			
QTY	9702	9701	FIND #	PART #	DESCRIPTION	MATL	SPEC.	
				PARTS LIST				
NEXT ASSY (S)				ORIGINAL DATE 05-28-09				
646.9600				DRAWN BY R. ROSANO				
				CHECKED BY P. BRAVO				
				DESIGNED BY P. BRAVO				
				CONTRACT NO.				
				UNLESS OTHERWISE SPECIFIED				
				DIMENSIONS ARE IN INCHES				
				TOLERANCES ARE:				
				2 PLACE DECIMALS ±.01				
				3 PLACE DECIMALS ±.005				
				ANGLES: ±.5°				
				CUTTER SUB ASSEMBLY				
				CAGE CODE				
				B 07M26				
				DWG NO 646.9700				
				REV D				
				SCALE NONE				
				SHEET 1 OF 7				

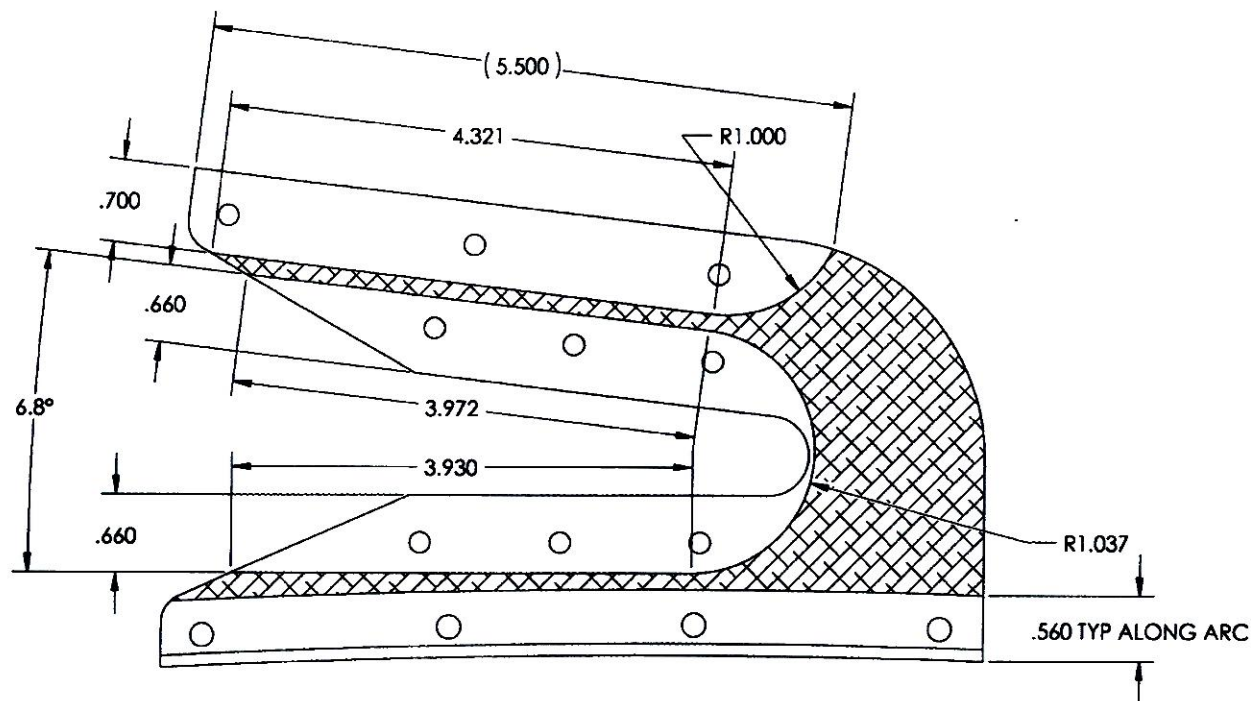
DART 3000 ENTERPRISE CT., SUITE A
VISTA, CA 92081
(760)-724-5300
APICAL INDUSTRIES, INC.
DBA DART AEROSPACE

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.



ORIGINAL DATE 05-29-09		3030 ENTERPRISE CT., SUITE A VISTA, CA 92081 (760) 724-5300	
DRAWN BY P. BOLAND	CHECKED P. BRAVO	DART AEROSPACE APICAL INDUSTRIES INC. (DBA DART AEROSPACE)	
DRAWING APPROVAL P. BRAVO 10/20/09 CONTRACT NO.		CUTTER SUB ASSEMBLY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ± .5°		SERIAL CODE 8 07M36	REV. D
SCALE NONE		DWG. NO. 646.9700	SHEET 2 OF 7

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.

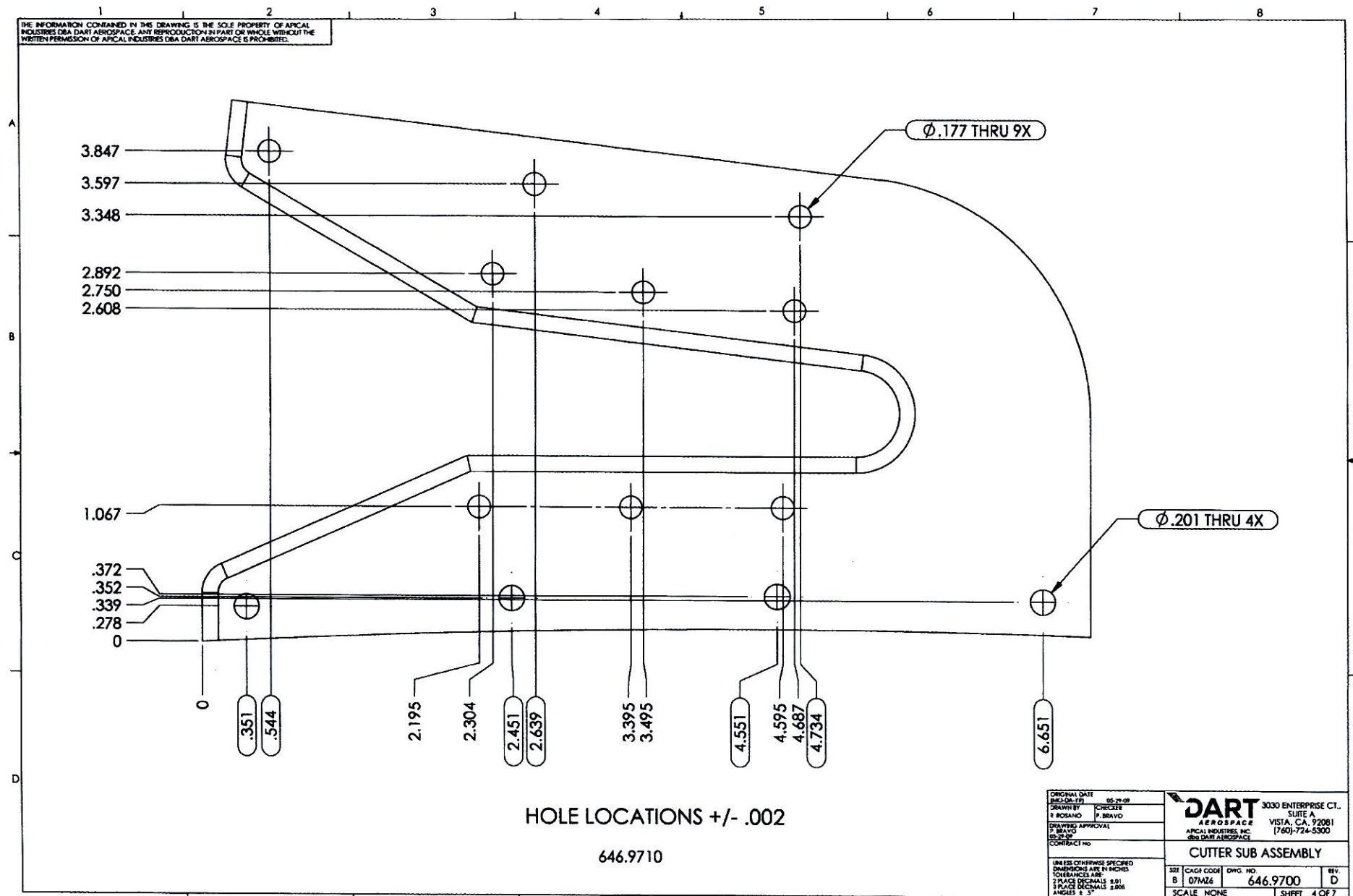


SECTION A-A 2/C6

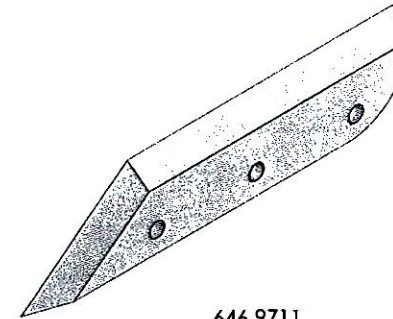
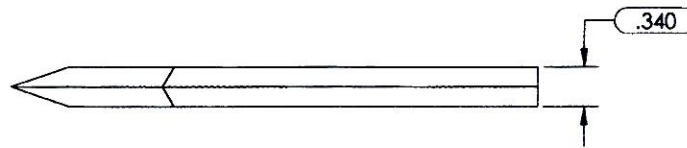
646.9710

ORIGINAL DATE 06/20/00		3030 ENTERPRISE CT., SUITE A VISTA, CA 92081 (760)-724-5300	
DRAWN BY R. BOIANO	CHECKED P. BRAVO	APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWING APPROVAL P. BRAVO 12/2/00		CUTTER SUB ASSEMBLY	
CONTRACT NO.		REV B	REV D
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°		QAG CODE 07M26	DWG. NO. 646.9700
SCALE NONE		SHEET 3 OF 7	

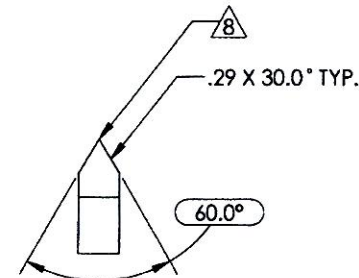
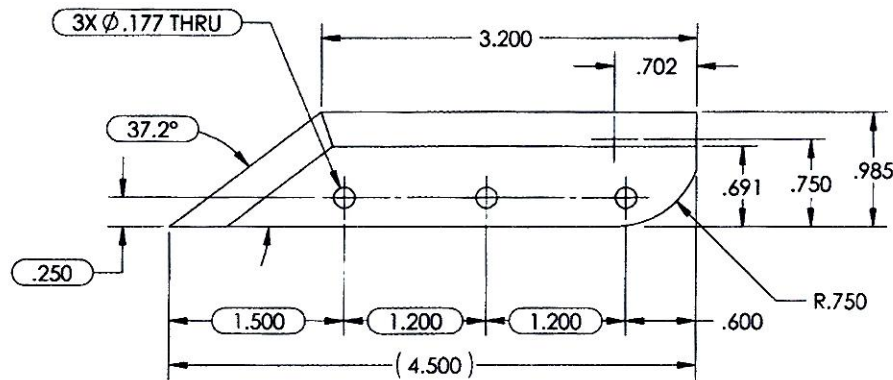
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.



THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.



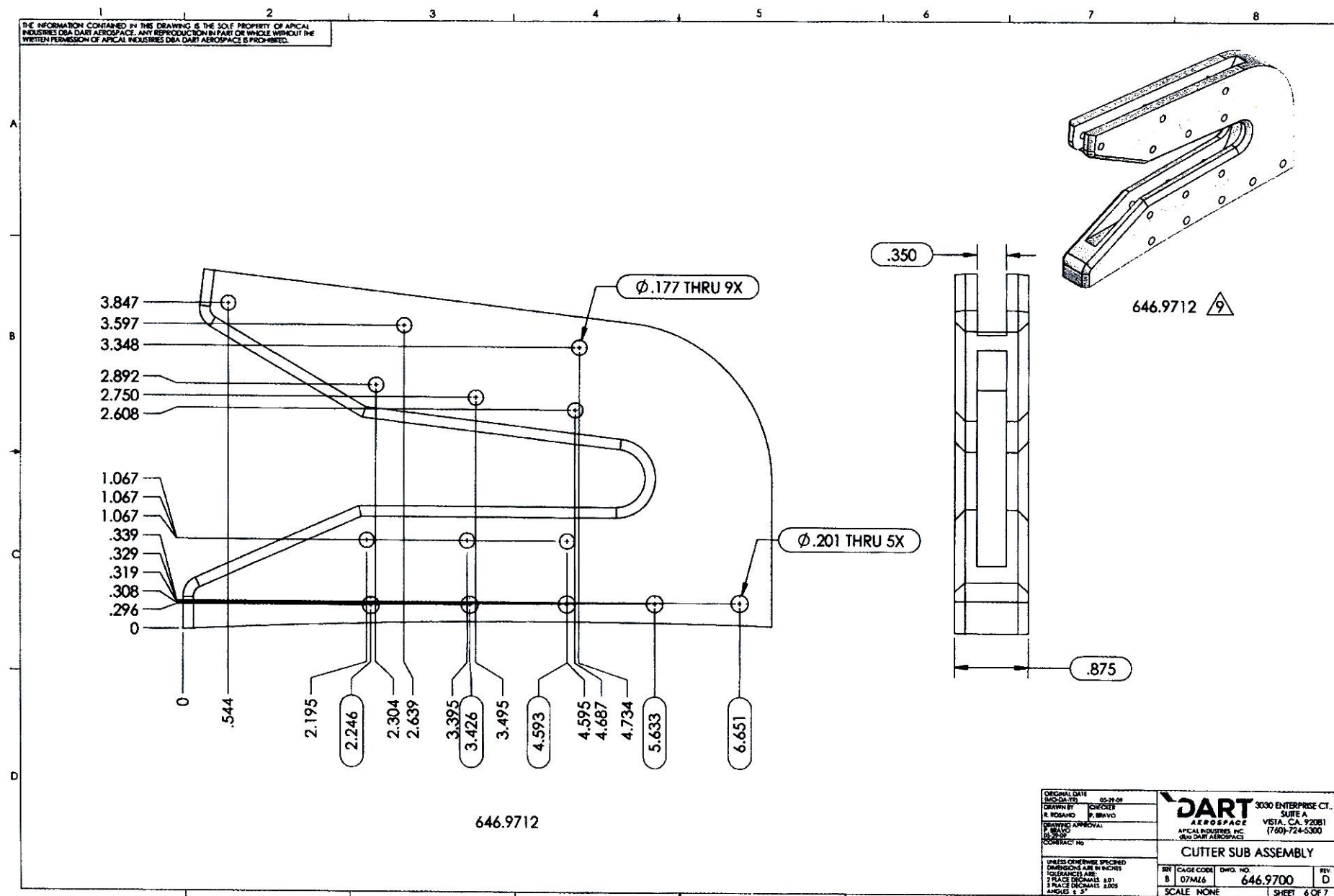
646.9711



646.9711

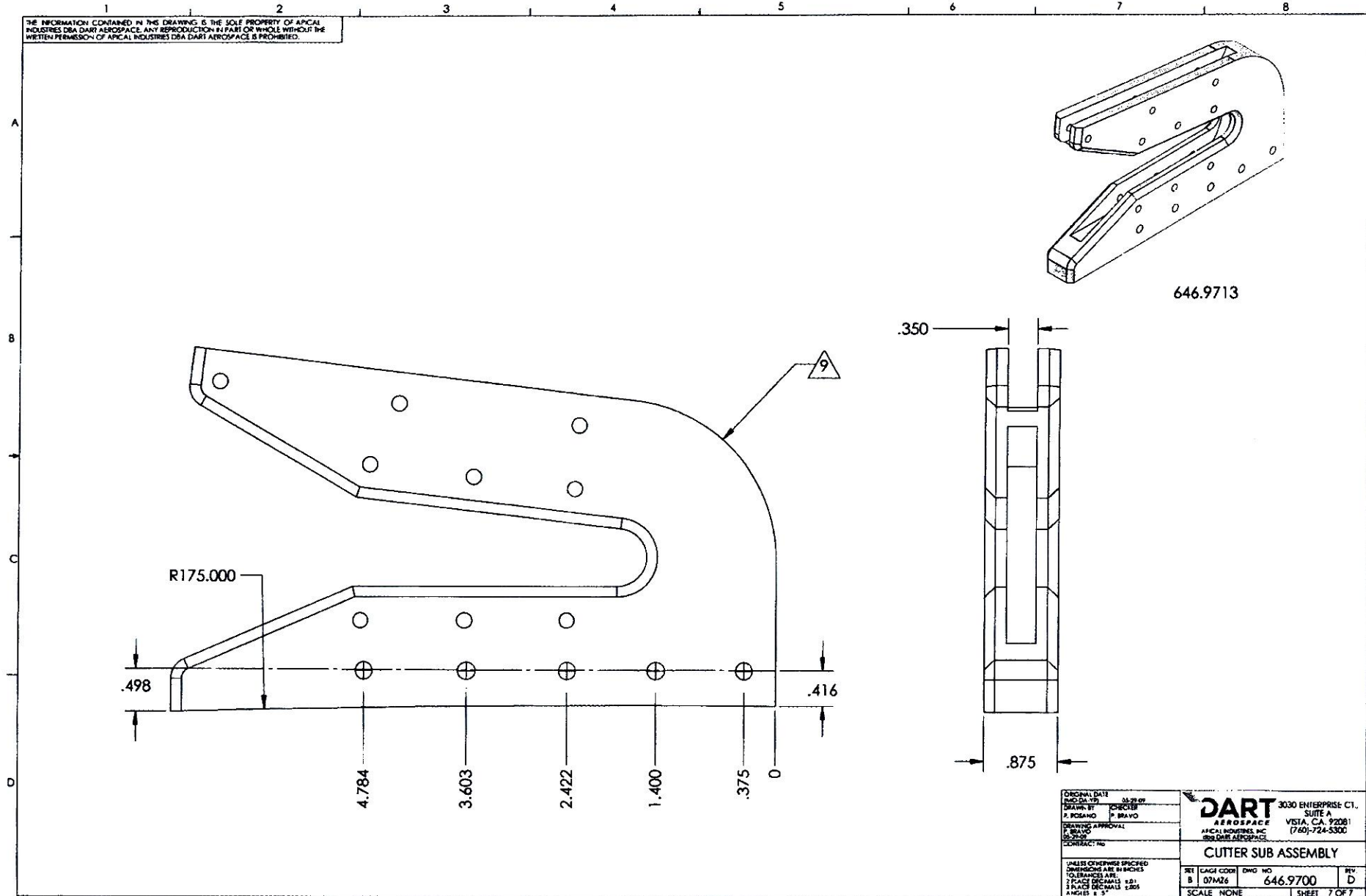
ORIGINAL DATE 05-28-09		3030 ENTERPRISE CT., SUITE A VISTA, CA 92081 (760)-724-5300			
DRAWN BY F. ROSANO	CHECKED P. BRAYCO	DART AEROSPACE APICAL INDUSTRIES, INC. DBA DART AEROSPACE			
DRAWING APPROVAL: DATE: CONTRACT NO.					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS .01 3 PLACE DECIMALS .005 ANGLES .5°		SET B	CAGE CODE 07M26	DWG. NO. 646.9700	REV. D
SCALE NONE		SHEET 5 OF 7			

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.



ORIGINAL DATE 10-21-09		3030 ENTERPRISE CT. SUITE A VISTA, CA 92081 (760)-724-5300	
DRAWN BY R. ROSANO	CHECKED P. BRAYO	DART AEROSPACE APICAL INDUSTRIES INC. DBA DART AEROSPACE	
DRAWING APPROVAL: P. BRAYO		CUTTER SUB ASSEMBLY	
CONTRACT NO.		SHEET 8	REV. D
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 3 PLACE DECIMALS .001 ANGLES ± .5°		DATE CODE 07M16	646.9700
		SCALE NONE	SHEET 6 OF 7

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF APICAL INDUSTRIES DBA DART AEROSPACE. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF APICAL INDUSTRIES DBA DART AEROSPACE IS PROHIBITED.



ORIGINAL DATE: PDC-DAT (7/9)	05-29-09		3030 ENTERPRISE CT. SUITE A VISTA, CA. 92081 (760)-724-5300		
DRAWN BY: P. POSANO	P. BRAVO				
DRAWING APPROVAL: P. BRAVO GROUP: CONTRACT: 740					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ±.01 3 PLACE DECIMALS ±.005 ANGLES ± 5°		CUTTER SUB ASSEMBLY			
SET: B	CAGE CODE: 07M26	DWG. NO: 646.9700	REV: D		
SCALE: NONE		SHEET 7 OF 7			



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO35521**

Purchase Order Date 3/8/2017
PO Print Date 3/10/2017

Page Number 5 of 7

Order From :

A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE ROAD
ROCKLAND, ON K4K 1T2
CANADA

VC-ATG001

Ship To : DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name

Vendor Phone 613-446-4544

Ship To Contact

Ship To Phone

Ship Via: VENDOR'S TRUCK

Ship Acct:

Buyer

Chantal Lavoie

Customer POID

Customer Tax # 10127-2607

Terms

Net 30

Currency

CAD

FOB

FCA - (Free Carrier)

12	156884	646.3712 CLIP REV. A	3/27/2017	10.00	\$6.10	\$61.00
----	--------	----------------------	-----------	-------	--------	---------

Yes

3/27/2017

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-PRF-23377 TYPE I CLASS N

Line Total: \$61.00

13	156801	646.3813 STRUT BRACKET REV. N/C	3/27/2017	5.00	\$6.10	\$30.50
----	--------	------------------------------------	-----------	------	--------	---------

Yes

3/27/2017

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-PRF-23377 TYPE I CLASS N

Line Total: \$30.50

14	156762	DAS 646.9710 BODY REV. D	3/27/2017	10.00	\$14.50	\$145.00
----	--------	--------------------------	-----------	-------	---------	----------

38
9-89

Yes

3/27/2017

FINISH: HARD BLACK ANODIZE AS PER IAW MIL-A-8625 TYPE III, CLASS 2 / PRIME AS PER IAW MIL-PRF-23377 TYPE I CLASS N

Line Total: \$145.00

8PH-03-27

PO Instructions: PRIMER IS SUPPLIED BY DART

Note:

3/10/2017



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 913083

Date: 24-Mar-17

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

Chantal Lavoie
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms		Ship Via	
Quantity	Description		
	PLEASE REFERENCE THE PACK LIST NUMBER ON ALL CORRESPONDENCE TO THIS SHIPMENT. IF YOU HAVE ANY QUESTIONS, PLEASE CALL AT (613) 446-4544.		
18 ea	Part: 646.3610 Rev: N/C Filler Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Prime per MIL-PRF-23377, Type I, Class N (Customer Supplied) Job: 20777 PO: PO35521 Line: 10		
10 ea	Part: 646.3711 Rev: A Clip Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Prime per MIL-PRF-23377, Type I, Class N (Customer Supplied) Job: 20778 PO: PO35521 Line: 11		
10 ea	Part: 646.3712 Rev: A Clip Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Prime per MIL-PRF-23377, Type I, Class N (Customer Supplied) Job: 20779 PO: PO35521 Line: 12		
5 ea	Part: 646.3813 Rev: N/C Strut Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Prime per MIL-PRF-23377, Type I, Class N (Customer Supplied) Job: 20780 PO: PO35521 Line: 13		
10 ea	Part: 646.9710 Rev: D Body Hard Black Anodize per MIL-A-8625F, Type III, Class 2 Prime per MIL-PRF-23377, Type I, Class N (Customer Supplied) Job: 20781 PO: PO35521 Line: 14		8017-03-27
10	Part: 646.9910 Rev: N/C		



A.T.G. INDUSTRIES INC.
731 INDUSTRIELLE STREET
ROCKLAND, ON K4K 1T2
Canada

Ph: (613) 446-4544

Fax: (613) 446-4556

Pack List

Number: 913083

Date: 24-Mar-17

To

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ship To

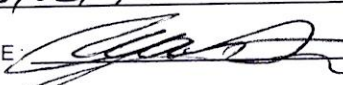
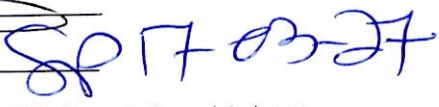
Chantal Lavoie
Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury, ON K6A 1K7

Ph: 613 632-9577

Fax: 613 632-1053

Ph: 613 632-9577

Fax: 613 632-1053

Terms	Ship Via
Quantity	Description
	DATE : <u>24/03/2017</u>
	CERTIFIED SIGNATURE : 
	RECEIVER SIGNATURE : 
	Note: This Packing Slip may contain parts that have been PLATED. Items that are plated may be subject to natural tarnishing and it is suggested that they be inspected within 24 hours of receipt.
	CERTIFICATE OF CONFORMANCE
	A.T.G. INDUSTRIES INC. CERTIFIES THAT ALL ITEMS IN THIS SHIPMENT CONFORM TO REQUIREMENTS.
	MADE IN CANADA.